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ABSTRACT

This booklet presents information to be used by the driver education teacher in conjunction with "A Resource Curriculum in Driver and Traffic Safety Education" (ED 059 372). A learning module is described followed by instructions on how to use the module in criterion-referenced driver education programs and on how to prepare a module. Six sample instructional modules are provided, with each module including an objective, a sample test item, and suggested activities. A short bibliography is included. (BL)

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PREPARATION AND USE OF INSTRUCTIONAL MODULES IN DRIVER AND TRAFFIC SAFETY EDUCATION

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FORWARD

In January, 1970, the Automotive Safety Foundation, a predecessor of the Highway Users Federation for Safety and Mobility, released its results of a three year Driver Education Curriculum Study and Development Project. Since then A Resource Curriculum in Driver and Traffic Safety Education *has been used by several thousand teachers, supervisors and administrators as a basic reference for the improvement of driver preparation curriculum.*

For those seriously attempting to implement suggestions set forth in the Resource Curriculum, *many efforts have been fruitful while others have been more challenging and less rewarding. It is the purpose of this publication to help bring about more fruitful utilization of the suggestions advanced in the* Resource Curriculum, *specifically the use of the behavioral objectives delineated.*

Behavioral objectives when properly constructed identify what the student should achieve, but they alone do not produce the desired changes in behavior. The teacher must provide experiences which will permit achievement of the objectives. One method being employed in providing meaningful experiences on an individualized basis is through the preparation and use of instructional modules. Thus, the concern of this publication.

The Highway Users Federation for Safety and Mobility was indeed fortunate to secure the services of Dr. Robert Mager and others of Mager Associates in the preparation of the paper which served as the basic text for this publication.

ARTHUR A. OPFER
Acting Director
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PREPARATION AND USE OF INSTRUCTIONAL MODULES IN DRIVER AND TRAFFIC SAFETY EDUCATION

What is a Module?

An instructional module is a tool usually designed to be used in the criterion-referenced classroom (described later), in that setting where instructional decisions are based mainly on the needs of the individual student. The module is a document through which classroom activities are controlled, through which the student is told exactly what he needs to be able to do and what activities are relevant to development of the required competencies.

A module, often called a contract, differs widely from an assignment. An assignment demands that a student engage in certain instructional activities, such as reading, memorizing, or solving problems; a contract, on the other hand, is outcome oriented, and demands that a student be able to perform in a particular way *regardless* of the instructional activities engaged in. A module tells the student precisely what is required in the way of acceptable performance; an assignment merely tells him what he should work at.

A module generally consists of a single page or card on which there is an instructional objective, one or two sample test items, and a list of suggested activities. A brief description of each of these key elements follows.

The *objective* tells the student about an important instructional outcome he is expected to achieve. It is written in language he can understand at the time the module is issued, and indicates how well he will need to perform to be considered acceptable (i.e. a criterion of acceptable performance is included).

The *sample test item* tells the student what he will have to do to demonstrate his achievement of the objective. It is

added to the objective because it is the fastest way of communicating this information to the student and because there is often a difference between the primary intent of the objective and the manner in which its achievement will be assessed; the sample test item is the fastest way to communicate this information to the student.

The *suggested activities* tell the student what he might do to achieve the objective. The list might include pages to read, films or filmstrips to view, discussions to initiate, projects to complete with other students, discussions to hold with the instructor, or other student-centered activities. Whenever possible, a variety of activities and sources are listed so that the student may have an opportunity to choose those that will be of most help to him.

How to Use the Module in Driver and Traffic Safety Education

As mentioned earlier, the module is usually prepared to be used in the subject or school operated on a criterion-referenced basis; the module is the main tool through which such an instructional system is operated. *Criterion-referenced instruction* is an expression used to describe a system wherein the *outcomes* (ends) of instruction are more important than the content. It describes a set of procedures that assume that the results of instruction are important to attain.

In part, the criterion-referenced approach may be understood by contrasting it with the traditional (teacher-centered) approach. In traditional driver education programs, instruction is carried out for a fixed period of time; with criterion-referenced instruction, on the other hand, instruction continues until the student can perform as desired, or better. In the traditional driver education program, all students read the same pages, listen to the same lectures, solve the same problems. In a criterion-referenced driver education program, however, the student engages in whichever activities he feels will help him achieve the objective of a module, and continues to work at the same or dif-

ferent activities until he *has* achieved the objective. In the traditional driver education program, all students are tested at the same time with a test designed to determine how much the student learned of what was "covered" in the classroom; in the criterion-referenced driver education program, the student is tested over a module when he feels he can perform as desired, and all items on the test are exactly relevant to the objective of the module. In the traditional driver education program, the student is labeled (graded) on the basis of how well he happens to do in relation to his chance neighbors; in the criterion-referenced driver education program he is labeled on the basis of how many objectives he has achieved during some unit of time (number of modules completed).

Perhaps the most important difference between the traditional and the criterion-referenced driver education program is in the outlook toward success. In the traditional program the amount of success that can be experienced by students is generally limited by the boundaries of the normal curve. It is impossible for all students to reach a competence level where they are *all* considered successful; the normal curve legislates against total success. In the criterion-referenced program, on the other hand, achievement of total success is the primary goal. The instructor organizes his own activities in whatever way he feels necessary to assist each and every student to achieve all the objectives (modules) considered appropriate for him to achieve.

Most effective use of the instructional module, then, requires an administrative environment that not only tolerates, but that encourages, total success. In such a system the teacher who facilitates achievement of all the important objectives by *all* students is the one who is revered, rather than the one whose grade distribution most closely approximates the normal curve. Since a normal distribution of grades is a sign of instructional failure rather than of success, a normal distribution of competence is not the goal of the criterion-referenced approach.

Modules in Criterion-Referenced Driver Education Programs

Following is a brief description of the way in which the module is used in the criterion-referenced driver education program.

1. A pattern of modules appropriate for each student is selected, with the expectation that the objectives of the modules will be achieved to accomplish satisfactory course completion. These selections are made primarily on a basis that answers the question. . . "What should the student be like at the end of the driver education program?" Into this decision goes the wisdom of the instructor, knowledge about the student, student interests and preferences, state laws, and so on. Though a separate pattern of modules is selected for each student based on his needs and capabilities, there is generally a great deal of overlap among module patterns.

Though a pattern of modules is selected at the beginning of a driver education program, this does not mean that the pattern is cast in stone. When it is discovered that mistakes have been made in the selection of a module for a particular student, that module is simply *un*selected. In other words, adjustments are made on the basis of wisdom and experience.

2. Modules should be issued to a student one at a time in driver education. Depending on the design of the module and the complexity of the objectives, achievement of the module might take between an hour and two weeks to achieve. The intent is that the objective describe a meaningful (useful) skill outcome (performing a driving task) rather than each of the steps or bits of knowledge required to achieve the meaningful outcome.

When the module is issued it is explained by the driver education instructor so the student will understand what is expected. He then sets a target date for completion, and that date is recorded by the instructor. If the student has no basis for assigning a target date, the opinion of the instructor is sought. The target date helps the student learn

about his own capabilities, and helps the instructor keep track of student progress.

3. The student then decides which activities he will engage in to achieve the objective. He might ask the driver education instructor for suggestions, or he might confer with another student. Again, the freedom to make decisions about how to achieve his objectives helps him learn to make better decisions.

In working toward completion of a module, the student may decide to work alone, with another student, with a group of students, or with the instructor. In the criterion-referenced driver education program, there is not only a variety of activities in progress at any given time, but there is a great deal more interaction between students than is the case in the traditional program.

If, when a module is issued, the student feels he can already demonstrate achievement of the objective, he is given the criterion test at that time. He is *not* required to study what he already knows.

4. When the student feels he is able to demonstrate his achievement of the objective, he checks himself by answering the sample test item associated with the objective of the module, and answers any other items that may have been provided him as a self-check. If he is confident of his achievement, he asks for, and is given, the criterion test for that module. If he is not sure of his achievement, he may discuss the subject with the instructor, who will then suggest whether he is ready or not for the test.

5. Responses to the criterion test are reviewed, and if the student has reached or surpassed the level of acceptable performance he is considered to have completed the module. An entry of the date the module is completed is then made on the driver education instructor's master control form. (A percentage score is not used, as that would defeat the object of the criterion-referenced approach. The student either reaches the criterion of acceptable performance, or he does not. If he does, he is issued the next module. If he does not, he continues to work.)

6. If a student does not complete a module satisfactorily the first time he tries the criterion test, he carries out more activities, the nature of which depends on his needs. The driver education instructor may suggest one or more activities that may be useful; in most cases it is obvious to the student what he needs to do to improve his competence.

How to Prepare a Module

The three major elements of the module are the objective, the sample test item and the suggested activities, and they are prepared in that order. Other items appearing on a module sheet, such as module number and type of performance are for administrative or instructor use. No more than one module is placed on one sheet.

1. Preparation of the module begins with the objective, which may be available from some source or which may be drafted by the module developer (2). Since the main intent of this publication is to aid in the utilization of *A Resource Curriculum in Driver and Traffic Safety Education* (1), it serves as *the* objective source for the modules developed and appearing as samples later in this publication. In any case, care is taken to insure that the objective mentions the primary intent and, when the primary intent is internal or invisible (e.g. solving, discriminating), a suitable indicator behavior is added.

Once the objective is chosen or drafted by the teacher, it is then translated into student language. Since the student will use the objective to help him organize his efforts towards its achievement, the objective must be written in language he can understand when he first sees it . . . *before* he has completed the associated instruction. The simplest way to accomplish this is to give the draft to one or two students and ask them to restate it in their own words. The language of the restatement becomes the language of the objective.

2. At least one sample test item is then written under the objective. Two purposes are served by the sample test item. First, it helps the objective teacher (writer) know when

he has a finished objective. Until he can describe at least one procedure for determining whether an outcome has been achieved, that outcome cannot be called an objective. The driver education teacher must continue to clarify his intent until he can write at least one sample test item. Second, the sample test item informs the student of exactly what he will have to do to demonstrate his achievement; it tells him what form of performance will be accepted as evidence he has achieved the objective. In some instances the test item is the same as the objective (when the performance mentioned in the objective is at the same time visible and the primary intent of the objective).

Often, however, the main intent of an objective is to describe an outcome that is largely invisible (e.g. solving, discriminating, adding, knowing). In these cases the test item cannot ask the student merely to engage in the activity which is the main intent of the objective; he must be asked to indicate through his visible behavior that he has performed as desired. Since, for example, it is impossible to see anyone solving or discriminating, it is necessary to ask the student to do something visible (such as writing the results of his solving or indicating the results of his discriminating); otherwise the teacher cannot know if the objective has been achieved. In cases such as these, the test item tells the student what visible thing he must do in order that his achievement can be determined.

3. The criterion test is then prepared. This is the test by which one will determine whether a student has achieved the objective of the module. If the criterion test is a written test, as many items are prepared as will be required as evidence that the student has reached the desired proficiency level. How many items? As many items as the teacher making the decision will require. If the examination is a performance test, the same rule holds. As many responses are called for as will be required to make a yes or no decision about achievement of the objective.

In all cases items *must* be exactly relevant to the objective, otherwise it is impossible to make a sound decision about achievement of the objective. If, for example, an

objective calls for a student to be able to *parallel park* a car or *solve* a problem, it is completely inappropriate to use items that ask a student to *describe* the steps in parallel parking or the steps in solving the problem. The type of performance called for in the test item must be the same as the one called for in the objective. Further, the conditions under which the performance is expected to occur must be the same on the test item as for the objective.

While it is permissible to use diagnostic items on the criterion test (i.e. items that might reveal areas of weakness), the response to such items are *never* included in an evaluation of whether the objective has been achieved.

Finally, the form of the criterion test is dictated by the primary intent of the objective rather than by administrative convenience, scoring convenience or the storage capacity of a computer. The purpose of the criterion test (to determine whether an objective has been achieved) can only be served if the responses called for in the test match those called for by the objective.

4. Suggested activities are then listed. These activities are those which are relevant to achievement of the objective, those that will give the learner the opportunity to practice the principal kind of performance (3) called for in the objective.

Suggested activities are selected mainly as follows:

First, one notes the primary intent of the module objective and determines its principal type of performance. For example, if an objective calls for an ability to recognize safety hazards, the principal type of performance is visual discrimination. If the objective calls for an ability to control a vehicle, then the principal type of performance is psychomotor.

Second, activities are identified that describe to the learner *what* to do and *when* to do it. These activities will typically include reading selected pages from one or more textbooks, watching a film or filmstrips, discussing with the driver education instructor, or listening to recorded lectures.

Third, *at least one* activity is listed that calls for the principal type of performance, to give the learner practice in doing that which is the essence of the objective. The critical importance of these particular activities is not hard to understand. Simply stated, telling is not the same as doing. Being able to tell someone how to drive and when to engage in certain maneuvers is not at all the same as being able to do it. Talking about driving is not the same as driving. If the student practices only "talking about" activities and none of the "doing" activities, it is unreasonable to expect that he will be able to perform as desired. If it is impossible to describe an activity that allows the learner to practice the principal type of performance called for in the objective, one must accept the risk that the learner will not be able to demonstrate achievement of the objective when tackling the criterion examination.

5. Finally, one checks the clarity of the module by asking a student or two to read over it, and then making certain that all references and materials are within easy reach of the student. "Easy reach" means that driver education references and materials are located where the student can get at them, and that the student has the authority to do so.

6. Though not a "step" in the usual sense, it is essential to periodically re-evaluate the objectives that were initially selected for the driver education course. As people and needs and tools change, so do the requirements for driver education instruction. Objectives must therefore be checked against needs, and must be checked for continuity and consistency. This is accomplished by answering these questions:

a. Is this objective still worth achieving?

b. If someone achieved each of the objectives, would he be able to perform as desired?

c. Are there irrelevant objectives? (Relevancy can often be assessed by the Consequences Test, by simply answering the question "What would be the consequences of not achieving this objective?" If the answer is that there would be no serious consequence, the objective is likely to be expendable.)

SAMPLE INSTRUCTIONAL MODULES

The following instructional modules were developed as samples for teachers interested in the application of the information contained in this publication to the utilization of *A Resource Curriculum in Driver and Traffic Safety Education.*

The Contract Number was arbitrarily chosen as the combination of the episode and the objectives numbers as identified in *A Resource Curriculum in Driver and Traffic Safety Education.* In practice, numbers are used that would have most meaning in the using schools.

The principal type of performance appearing under the objective is there for teacher information only, and would not normally appear on a module used by students. Its purpose is to assist in the selection of relevant activities.

When texts are listed in the Suggested Activities, authors only are shown. In practice, it is useful to paint large numbers on the texts so that they can be easily identified and so that they can be referred to in writing in a way that requires a minimum of reading. Blanks are provided for the teacher to supply additional activities.

Contract #4-4 *

Objective:

Describe the procedure for passing another vehicle going in the same direction on a straight road. Explain the reason for each step.
(Principal type of performance: *verbal chaining*)

Sample Test Item:

Write the steps of the procedure for passing another vehicle going in the same direction on a straight road. Add a short sentence to explain the reason for each step.

Suggested Activities:

1. READ Halsey/Kaywood, pages 211-223.
2. WRITE the ten steps for successful passing listed on page 222.
3. WRITE answers to questions listed on page 223.
4. STUDY your state motor vehicle code. STUDY the meaning of traffic signs (by shape and color) and the different kinds of pavement markings and their meaning.
5. _____
   _____
6. _____
   _____

* Contract based upon objective for Segment 4.4, Passing and Being Passed, identified on page 50 of the *Resource Curriculum*.

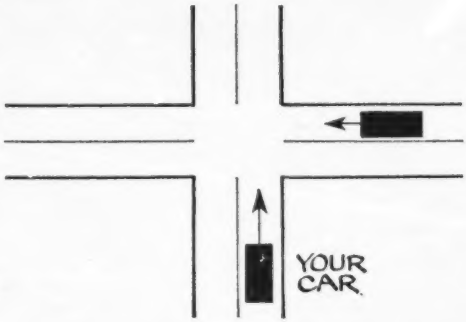
Contract #5-1 *

Objective:

Given a series of photographs or drawings depicting common traffic situations, circle the cues or elements that could represent a potential hazard.

(Principal type of performance: *visual discrimination*)

Sample Test Item:



Circle the cues that represent potential hazards (cues you would need to watch).

Suggested Activities:

1. READ Halsey/Kaywood, pages 148-170.
2. WRITE answers to the questions beside the photographs on pages 159 and 163. Check your answers with those of another student.
3. WRITE answers to the questions on page 170. Check your answers with those of another student.
4. While riding with an experienced driver POINT TO potential driving hazards. Check your judgment with the driver.
5. .....
6. .....

* Contract based upon objective for Segment 5.1, Approach(ing Intersections), identified on page 55 of the *Resource Curriculum.*

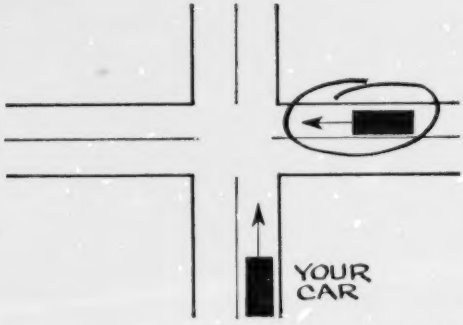
Contract #5-1A *

Objective:

When shown photos or drawings of approach positions to various kinds of intersections, on which potential hazards have been identified, describe what to do to reduce the hazard.

(Principal type of performance: *verbal chaining*)

Sample Test Item:



In this situation, the car coming from the right represents a potential hazard. What is the best thing to do to reduce that hazard?

Suggested Activities:

1. READ Halsey/Kaywood, pages 184-196.
2. WRITE answers to questions on page 196.
3. WRITE answers to the Picture Problem on page 184.
4. .....
   .....
5. .....
   .....

* Contract based upon objective for Segment 5.1, Approach(ing Intersections), identified on page 55 of the *Resource Curriculum*. Contract would follow that contract offered as sample on preceding page.

Contract #5-2 *

Objective:

Given a series of photos or drawings of various kinds of intersection situations, describe how to carry out the turning movement indicated. Include lane and speed, and means of communicating (signals) to other drivers.

(Principal type of performance: *verbal chaining*)

Sample Test Item:

Describe how you would make a right turn in the situation shown above. Draw the path your car would take to reach point B; describe your speed changes, if any, and how you would communicate with others.

Suggested Activities:

1. REVIEW Halsey/Kaywood, pages 188-195.
2. READ Center for Safety Ed., pages 188-195.
3. While driving with an experienced driver, observe the procedure for handling various intersection situations and turning movements. ASK questions about the reason for lane and speed changes.
4. .....
5. .....

* Contract based upon objective for Segment 5.2, Turning Movements, identified on page 55 of the *Resource Curriculum*.

Contract 2.2*

Objective:

For each of the following items be able to describe the principal effects on body functions of *mild* and *heavy* usage: narcotics, marijuana, barbiturates, amphetamines.

(Principal type of performance: *verbal chaining*)

Sample Test Item:

What are the main effects on body functions of:

a. mild usage of marijuana?

b. heavy usage of marijuana?

Suggested Activities:

1. READ AAA book, pages 72-74. WRITE answers to questions 10 and 11, page 75.
2. READ Halsey/Kaywood, pages 41-42. WRITE answers to question 17, page 43.
3. READ Strauser, Eales, Aaron, pages 72-76. WRITE answers to questions 17 through 20, page 77.
4. .....
   .....
5. .....
   .....

* Contract based upon objective for Segment 2.2, Drugs and Medicines, as identified on page 96 of the *Resource Curriculum.*

Contract 1.4 *

Objective:

Describe the main effects of alcohol on the human functions involved in driving, in the order that these effects are likely to occur as concentration level of alcohol increases.

(Principal type of performance: *verbal chaining*)

Sample Test Item:

Describe the main effects of alcohol on personality, judgment, sight, hearing, balance, in the order these are likely to occur as concentration levels of alcohol increase.

Suggested Activities:

1. READ AAA book, pages 65-71.
2. READ Strauser, Eales, Aaron, pages 64-70.
3. WRITE a summary (brief) describing the main effects of alcohol on personality, judgment, sight, hearing, balance, in the *order* in which these are likely to occur as concentrations of alcohol increase.
4. .....

   .....
5. .....

   .....

* Contract based upon objectives for Segment 1.4, (Alcohol) Influence on Driving Performance, identified on page 92 of the *Resource Curriculum.*

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